Patent claims:

1.   A unit, in particular a melting and/or refining unit
and/or distributor system and/or channel system, for
conductively heatable melts (30), in particular glass melts,
which has a tank and at least one electrode (20), the
electrode (20) passing through an opening in a wall (10) of
the tank so as to be immersed in the conductively heatable
melt (30), which unit has an apparatus for reducing the local
introduction of heating power into at least one region –
adjacent to the electrode (20) – of the wall (10).

2.   The unit as claimed in claim 1, wherein the apparatus
for reducing the local introduction of heating power into at
least one region – adjacent to the electrode (20) – of the
wall (10) comprises at least one shielding device (15, 25).

3.   The unit as claimed in claim 2, wherein the shielding
device (15) is arranged in a region – adjacent to the
electrode (20) – of the wall (10).

4.   The unit as claimed in either of claims 2 and 3, wherein
the shielding device (15) comprises an electrode brick (11)
made from a first material and at least one insulation device
(12, 13) which adjoins the electrode brick (11).

5.   The unit as claimed in one of claims 2 to 4, wherein the
shielding device (15) has a layered structure, the electrode
brick (11) forming one layer and the insulation device (12,
13) forming at least one further layer.

6.   The unit as claimed in one of claims 2 to 5, wherein at
least one layer (12) of the insulation device forms a holder
for the electrode brick (11).

7.   The unit as claimed in one of claims 2 to 6, wherein the electrode brick (11) comprises at least one first refractory material.

8.   The unit as claimed in one of claims 2 to 7, wherein the insulation device (12, 13) comprises at least one second refractory material.

9.   The unit as claimed in one of claims 2 to 8, wherein the electrode brick (11) and the insulation device (12, 13) have a high ability to withstand temperature changes.

10.   The unit as claimed in one of claims 2 to 9, wherein the refractory material of the electrode brick (11) and/or the refractory material of the insulation device (12, 13) is resistant to corrosion from the melt (30).

11.   The unit as claimed in one of claims 2 to 10, wherein the at least one refractory material of the insulation device (12, 13) has a higher electrical conductivity than the at least one refractory material of the electrode brick (11).

12.   The unit as claimed in one of claims 2 to 11, wherein the electrical resistivity $\rho_{el,refractory}$ of the at least refractory material of the insulation device (12, 13) and/or of the at least one refractory material of the electrode brick (11) is higher than the electrical resistivity $\rho_{el,melt}$ of the melt (30).

13.   The unit as claimed in one of claims 2 to 12, wherein the electrical resistivity $\rho_{el,refractory}$ of the at least one refractory material of the insulation device (12, 13) and/or of the at least one refractory material of the electrode

brick (11) in relation to the electrical resistivity $\rho_{el,melt}$ of the melt (30) has a value of at least $\rho_{el,refractory}$ $\geq 1.5 \cdot \rho_{el,melt}$, in particular for the electrode brick a value of $\rho_{el,refractory} \geq 10 \cdot \rho_{el,melt}$.

14. The unit as claimed in one of claims 2 to 13, wherein the wall thickness d of the electrode brick (11) is adapted to a selectable upper limit value for the electric field gradient $\Delta E_{1,2}$ at the transition from the electrode brick (11) to the at least one layer (12) of the insulation device.

15. The unit as claimed in claim 14, wherein the upper limit value of the electric field gradient $\Delta E_{1,2}$ at the transition from the electrode brick (11) to the at least one layer (12) of the insulation device is $\Delta E_{1,2} = 5$ V/cm.

16. The unit as claimed in one of claims 2 to 15, wherein the width of the gap between electrode (20) and refractory material b_{Sp} has a value in the range from 0 mm $< b_{Sp} \leq 30$ mm.

17. The unit as claimed in claim 16, wherein the width of the gap between electrode (20) and refractory material b_{Sp} has a value in the range from 2 mm $\leq b_{Sp} \leq 5$ mm.

18. The unit as claimed in one of claims 2 to 17, wherein the wall thickness d of the electrode brick (11) is at least double the width b of the opening in the electrode brick (11).

19. The unit as claimed in one of claims 2 to 18, wherein the wall thickness d of the electrode brick (11) is up to 500 mm.

20. The unit as claimed in claim 19, wherein the wall thickness d of the electrode brick (11) is in the range from 75 mm ≤ b ≤ 150 mm.

21. The unit as claimed in one of claims 2 to 20, wherein the height h of the electrode brick (11) is in the range from 20 mm ≤ h ≤ 300 mm.

22. The unit as claimed in claim 21, wherein the height h of the electrode brick (11) is in the range from 75 mm ≤ h ≤ 150 mm.

23. The unit as claimed in one of claims 2 to 20, wherein the electrode brick (11) is rectangular in form.

24. The unit as claimed in claim 2, wherein the shielding device (25) is arranged in a region - adjacent to the electrode (20) - of the melt (30).

25. The unit as claimed in claim 24, wherein the shielding device (25) comprises a shielding basket (22).

26. The unit as claimed in claim 25, wherein the shielding basket (22) has an opening (26) through which the electrode (20) can be passed, the perpendicular through the opening (26) defining the axis of the shielding basket.

27. The unit as claimed in either of claims 25 and 26, wherein the opening (26) in the shielding basket (22) is arranged in an upper boundary (24) of the shielding basket (22).

28. The unit as claimed in one of claims 25 to 27, wherein the shielding basket (22) is arranged coaxially with respect

to an electrode (20).

29.   The unit as claimed in one of claims 25 to 28, wherein the shielding basket (22) is rotationally symmetrical in form.

30.   The unit as claimed in one of claims 25 to 29, wherein the upper boundary (24) of the shielding basket (22) is formed integrally.

31.   The unit as claimed in one of claims 25 to 30, wherein the shielding basket (22) has two rims (27, 28), which can be connected by elements (29), at least one rim forming the upper boundary (24).

32.   The unit as claimed in one of claims 25 to 31, wherein the longitudinal axis of the elements (29) includes an angle W with the surface (18), facing the melt (30), of the region – adjacent to the electrode (20) – of the wall (10).

33.   The unit as claimed in claim 32, wherein the angle W has a value in the range from $0° < W \leq 90°$.

34.   The unit as claimed in claim 33, wherein the angle W has a value in the range from $30° \leq W \leq 60°$.

35.   The unit as claimed in one of claims 25 to 34, wherein the shielding basket (22) can be secured to the electrode (20).

36.   The unit as claimed in one of claims 25 to 35, wherein the shielding basket (22) can be secured to the wall (10).

37.   The unit as claimed in one of claims 25 to 36, wherein

the shielding basket (22) comprises Mo and/or W and/or SnO_2 and/or at least one precious metal and/or at least one alloy of the abovementioned materials and/or high-temperature-resistant steels.

38. The unit as claimed in one of claims 25 to 37, wherein the ratio of the length of the electrode body L_{EK} which is immersed in the melt to the height H_K of the shielding basket (22) has a value in the range from $1 \leq L_{EK}/H_K \leq 20$.

39. The unit as claimed in one of claims 25 to 38, wherein the ratio of the length of the electrode body L_{EK} which is immersed in the melt to the height H_K of the shielding basket (22) has a value in the range from $2 \leq L_{EK}/H_K \leq 5$.

40. The unit as claimed in one of claims 25 to 39, wherein the ratio of the outer radius R_K of the shielding basket (22) to the radius R_{EL} of the electrode body has a value in the range from $2 \leq R_K/R_{EL} \leq 15$.

41. The unit as claimed in one of claims 25 to 40, wherein the ratio of the outer radius R_K of the shielding basket (22) to the radius R_{EL} of the electrode body has a value in the range from $3 \leq R_K/R_{EL} \leq 7$.

42. The unit as claimed in one of claims 25 to 41, wherein the ratio of the distance D_{HK} between two electrodes to the outer radius R_K of the shielding basket (22) has a value in the range from $3 \leq D_{HK}/R_K \leq 500$.

43. The unit as claimed in one of claims 25 to 42, wherein the ratio of the distance D_{HK} between two electrodes to the outer radius R_K of the shielding basket (22) has a value in the range from $20 \leq D_{HK}/R_K \leq 80$.

44. The unit as claimed in one of claims 25 to 43, wherein the width l_K of the upper rim of the shielding basket (22) is in the range from $0 \leq l_K \leq R_K$.

45. The unit as claimed in one of claims 25 to 44, wherein the width l_K of the upper rim of the shielding basket (22) is in the range from $0 \leq l_K \leq 1/3 \cdot R_K$.

46. The unit as claimed in one of claims 25 to 45, wherein the width a of the gap between electrode body and inner boundary of the opening (26) in the shielding basket (22) is in the range from $0 \leq a \leq 50$ mm.

47. The unit as claimed in one of claims 25 to 46, wherein the width a of the gap between electrode body and inner boundary of the opening (26) in the shielding basket (22) is in the range from $0 \leq a \leq 30$ mm.

48. The unit as claimed in one of claims 25 to 47, wherein the material thickness d_K of the components of the shielding basket (22) is in the range from 5 mm $\leq d_K \leq 50$ mm.

49. The unit as claimed in one of claims 25 to 48, wherein the width b_{Sp} of the gap between electrode body and inner boundary of the opening in the wall (10) is in the range from 1 mm $\leq b_{Sp} \leq 30$ mm.

50. The unit as claimed in one of claims 25 to 49, wherein the width b_{Sp} of the gap between electrode body and inner boundary of the opening in the wall (10) is in the range from 2 mm $\leq b_{Sp} \leq 5$ mm.

51. The unit as claimed in one of claims 25 to 50, wherein

the thickness D_{FF} of the material of the wall (10) which is in contact with the melt (30) is in the range from

50 mm $\leq D_{FF} \leq$ 500 mm.

52. The unit as claimed in one of claims 25 to 51, wherein the thickness D_{FF} of the material of the wall (10) which is in contact with the melt (30) is in the range from

100 mm $\leq D_{FF} \leq$ 300 mm.

53. The unit as claimed in one of claims 25 to 52, wherein the electrical resistivity $\rho_{el,refractory}$ of the at least refractory material of the wall (10) and/or of the at least one refractory material of the electrode brick (11) and/or of the at least one refractory material of the insulation device (12, 13) in relation to the electrical resistivity $\rho_{el,melt}$ of the melt (30) has a value of from

1 $\cdot$ $\rho_{el,melt} \leq \rho_{el,refractory} \leq$ 20 $\cdot$ $\rho_{el,melt}$.

54. The unit as claimed in one of claims 25 to 53, wherein the electrical resistivity $\rho_{el,refractory}$ of the at least one refractory material of the wall (10) and/or of the at least one refractory material of the electrode brick (11) and/or of the at least one refractory material of the insulation device (12, 13) in relation to the electrical resistivity $\rho_{el,melt}$ of the melt (30) has a value of

1.5 $\cdot$ $\rho_{el,melt} \leq \rho_{el,refractory} \leq$ 5 $\cdot$ $\rho_{el,melt}$.

55. The unit as claimed in one of the preceding claims, wherein the temperature T has a value in the range from

500°C $\leq$ T $\leq$ 3000°C.

56. The unit as claimed in on one of the preceding claims, wherein the temperature T has a value in the range from

$800°C \leq T \leq 1900°C.$

57. The unit as claimed in one of the preceding claims, wherein the current loading i has a value in the range from
5 $0.05 \ A/cm^2 \leq i \leq 20 \ A/cm^2.$

58. The unit as claimed in one of the preceding claims, wherein the current loading i has a value in the range from $0.1 \ A/cm^2 \leq i \leq 3 \ A/cm^2.$
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59. The unit as claimed in one of the preceding claims, wherein the at least one electrode (20) is a bottom electrode and/or a side electrode and/or a top electrode.

15 60. The use of an apparatus for reducing the local introduction of heating power into at least one region – adjacent to the electrode (20) – of the wall (10), in particular as described in one of the preceding claims, during operation of a unit for conductively heatable melts
20 (30), in particular glass melts.